structures only, through changed nutrition came to develop both sexes.

SEXUAL PERIODICITY IN DICTYOTA

An interesting case of periodicity in the release of sexual cells in *Dictyota* is reported from Naples by I. F. Lewis in the Botanical Gazette, 1910. It is similar in some respects to that recorded on page 14 of this issue for the worm *Odontosyllis*. Mature gametes are released 2 or 3 days after the neap tides. The rudiments of the next generation of gametes begin at the same time. The author finds that the critical points (formation and liberation of the sexual bodies) *are reached on the day that low water occurs at or nearest mid-day*. Thus the maximum intensity of light must be a principal factor in these periodic phenomena. At other places where the plant has been studied this simple correspondence is somewhat modified. This may be due to the persistence of certain inheritances of earlier adaptations.

QUINONE FIXATION OF ALGAE

A. Bonnet says that even the most delicate algae—as the Siphoneae, Confervaceae, Conjugatae, Florideae, etc., may be satisfactorily fixed in freshly prepared quinone solution with a strength of 4:1000. The advantages of the method are: That it may be used in either salt or fresh water; and that it resists well the dehydration necessary for mounting either by the glycerine-jelly or balsam method. The treatment stains the chloroplyll a greenish brown, and the non-green protoplasm a light yellow.

GROWTH OF NERVES IN CULTURE MEDIA

Professor Ross Granville Harrison (Jour. Exp. Zool., Dec., 1910) has succeeded in growing excised embryonic cells from the nervous system of tadpoles, in hanging-drop cultures of coagulated lymph. Nerve fibrils of more than 1 mm. were thus secured which could be observed at all stages of growth from the nerve cells. His observations show (1) that the primitive nerve fibers are formed by actual protoplasmic movement of the hyaline ectoplasm of the nerve-cell in a way quite analogous to the extension of pseudopodia in rhizopods, and that these fibers end in a rhizopod-like enlargement with fine processes or pseudopodia; and (2) that the

neuro-fibrillae differentiate later within this filament. This demonstration is believed to deny the necessity of supposing with Hensen and Schultze and others, that formed structures outside the original nerve cell are largely responsible for the structure and course of the nerve fibers.

CAUSES OF CONJUGATION IN PARAMECIUM

Professor Jennings has recently added to his interesting studies of the Protozoa a study of the conditions determining conjugation in *Paramecium*. He finds that successive conjugations may occur in some cases at intervals of five days and in others of two weeks to a month. In one case conjugation was repeated after only four divisions. In others, divisions were followed for three years with no signs of degeneration and without any conjugation whatever. The conditions that induce conjugation are both internal and external: Internal (inherited), because different stock subjected to exactly similar conditions had vastly varied periods; external, because certain nutritive cycles affect the rate. Starved individuals do not conjugate. Individuals that have been starved and are becoming well-fed do not conjugate. Thriving individuals with declining nutritive conditions tend to conjugate. The author is disposed to believe that senile degeneration due to a long series of divisions which has been thought to be the principal cause of conjugation does not figure as a factor of moment.

POWERS OF RESISTANCE IN PIOPHILA LARVAE

It has been shown that *Piophila* larvae, which are to be found in cheese and are favored by some eaters of cheese, can pass thru the gut of the dog or of man without being injured. It is claimed that they do some damage to the wall of the intestine by the action of their oral hooks and ventral papillae. They are very hardy and resist the action of alcohol and other killing agents for considerable periods of time.

THE BACILLUS OF TYPHUS

W. Predtjetschensky, in Centralblatt f. Bakteriol. u. Parasit. 1910, believes that he has discovered the specific Bacillus of typhus fever. His evidences are: The bacilli are found abundantly in blood of patients suffering from the fever, especially about the 6-9